

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
'ohi'a fence posts	Contributing			
NPS nursery fence, pavilion, tables, and accessories	Non-Contributing			
NPS Rain Gauges	Non-Contributing			
Wooden benches	Non-Contributing			

Views And Vistas

Views and vistas are the prospect afforded by a range of vision in the landscape conferred by the composition of other landscape characteristics and associated features. Views are typically expansive or panoramic, while vistas are more controlled and linear.

According to Donn Carlsmith, a friend of Herbert Shipman, there were three distinct vistas from the upstairs balcony of the 'Ainahou Ranch House during the period of significance. These were defined by linear breaks through the surrounding 'ohi'a forest in southerly, southeasterly, and southwesterly directions (Interview by W. Markiewicz, 1995).

The southerly vista probably presented the most uninhibited view, since it was oriented perpendicular to the topographic gradient, and because open pasture lay in this direction. Supposedly, Keauhou Point could be seen from the balcony on a clear day. There is still a partially open vista to the south today, but it is substantially compromised by trees in the foreground, so that Keauhou Point lies obstructed from view.

Vegetation growth following the period of significance has made the angle of the southeasterly vista difficult to decipher. The vista was likely not as extensive as the southerly and southwesterly vistas, but stretched a good distance into the surrounding forest. In addition, this vista would have provided a clear line of sight between the lower portions of driveway loop and the ranch house. However, Russian olive trees growing within the driveway loop are a major impediment to this vista, as are the dense faya trees that grow between the driveway loop and the corral area.

The southwesterly vista was made possible through a narrow break in the surrounding 'ohi'a forest. During the period of significance, one could supposedly see past Hilina Pali (cliff) and peer far down the southern Ka'u coastline towards South Point. A portion of the linear gap is still discernable within the component landscape boundary, but the long-distance view has been blocked by trees a few hundred yards away.

The last few decades have seen the proliferation of faya trees (*Morella faya*) in Hawai'i Volcanoes National Park. This species is extremely fast-growing, particularly when compared to the slow-growing 'ohi'a trees. The park has prevented the establishment of faya trees within the component landscape, but they are quickly filling in the gaps in the otherwise sparse 'ohi'a forest that surrounds the landscape boundary. General visibility along the entrance road and in the component landscape would have been significantly less obstructed during the period of significance. In addition, further unidentified views or vistas may have existed, which are now blocked by these trees. For example, it seems likely that the corral may have been visible from the house during the period of significance, but this view is currently obstructed by a dense band of faya trees.

Three remnant vistas from the ranch house balcony are considered to be contributing because of their strong potential (if the non-contributing vegetation was removed) to revive historic integrity and provide a sense of spatial context important to the history and interpretation of the cultural landscape. The southerly vista is particularly important since it overlooks the ranch and the historic road / trail to Keauhou Landing, where cattle were historically transported by ship. However, due to the significant alteration and obscuring of views and vistas by vegetation growth, this characteristic no longer contributes to the significance of the 'Ainahou Ranch House and Gardens.

Management Information

Descriptive And Geographic Information

Historic Name(s): 'Ainahou Ranch House
Current Name(s): 'Ainahou Ranch House
Management Unit:
Tract Numbers: 01-114
State and County: Hawaii County, HI
Size (acres): 13.38

Boundary UTM

Boundary UTM(s):	Source	Type	Datum	Zone	Easting	Northing
	GPS-Differentially Corrected	Point	NAD 83	5	265752	2140272
	GPS-Differentially Corrected	Point	NAD 83	5	265901	2140307
	GPS-Differentially Corrected	Point	NAD 83	5	265705	2140705
	GPS-Differentially Corrected	Point	NAD 83	5	265859	2140507
	GPS-Differentially Corrected	Point	NAD 83	5	266004	2140483
	GPS-Differentially Corrected	Point	NAD 83	5	265737	2140452
	GPS-Differentially Corrected	Point	NAD 83	5	265780	2140441
	GPS-Differentially Corrected	Point	NAD 83	5	265707	2140285
	GPS-Differentially Corrected	Point	NAD 83	5	266002	2140571
	GPS-Differentially Corrected	Point	NAD 83	5	266084	2140548
	GPS-Differentially Corrected	Point	NAD 83	5	266048	2140424
	GPS-Differentially Corrected	Point	NAD 83	5	265952	2140407
	GPS-Differentially Corrected	Point	NAD 83	5	265935	2140334
	GPS-Differentially Corrected	Point	NAD 83	5	265806	2140314
	GPS-Differentially Corrected	Point	NAD 83	5	265814	2140299

GPS-Differentially Point NAD 83 5 265794 2140316
Corrected

GIS File Name: 3 files ending with_cr104.apr (see below)

GIS File Description: These are ArcView projects names for maps located at
E:\Ainahou\GIS\Ainahou_Backup_25\vegmap_tablay_
cr104.apr, E:\Ainahou\GIS\Site
Plan\siteplan_ainahou_cr104.apr,
E:\Ainahou\GIS\Structures\structures_ainahou_cr104.a
pr

National Register Information

National Register Documentation: Entered -- Inadequately Documented

Explanatory Narrative:

NRIS Information:

NRIS Number: 94001619
Primary Certification: Listed In The National Register
Primary Certification Date: 2/8/1995
Name In National Register: Ainahou Ranch
Other Names In
National Register: 10-62-19429;10-62-19429

National Register Eligibility: Eligible -- SHPO Consensus Determination

Explanatory Narrative:

In addition to the existing National Register documentation, the HI SHPO concurred on the findings of this CLI on September 24, 2004.

Date of Eligibility Determination: 9/24/2004

National Register Classification: Site

Significance Level: State

Contributing/Individual: Contributing

Significance Criteria: B -- Inventory Unit is associated with the lives of
persons significant in our past
C -- Inventory Unit embodies distinctive
characteristics of type/period/method of construction;
or represents work of master; or possesses high artistic
values; or represents significant/distinguishable entity
whose components lack individual distinction

Period Of Significance

Time Period: 1941 - 1971 AD

Historic Context Theme:	Transforming the Environment
Historic Context Subtheme:	Conservation of Natural Resources
Historic Context Facet:	Fish, Wildlife, And Vegetation Preservation
Historic Context Theme:	Expressing Cultural Values
Historic Context Subtheme:	Architecture
Historic Context Facet:	Bungalow (1890-1940)
Historic Context Theme:	Expressing Cultural Values
Historic Context Subtheme:	Other Expressing Cultural Values
Historic Context Facet:	Other Expressing Cultural Values -- Rare Plant Collections

Area Of Significance:

Category:	Conservation
Priority:	1
Category:	Architecture
Priority:	2
Category:	Agriculture
Priority:	3

State Register Information

State Register Documentation

Document ID Number:	50-10-62-19,429
Date Listed:	4/16/1994
Document Name:	'Ainahou Ranch House
Explanatory Narrative:	'Ainahou Ranch House was listed on the Hawai'i Register in 1994.

National Historic Landmark Information

National Historic

Landmark Status: No

World Heritage Site Information

World Heritage Site Status: No

Cultural Landscape Type and Use

Cultural Landscape Type: Historic Vernacular Landscape

Current and Historic Use/Function:

Use/Function Category: Domestic (Residential)

Use/Function: Estate Landscape

Detailed Use/Function: Estate Landscape

Type Of Use/Function: Historic

Use/Function Category: Agriculture/Subsistence

Use/Function: Horticulture Facility

Detailed Use/Function: Horticulture Facility

Type Of Use/Function: Both Current And Historic

Use/Function Category: Education

Use/Function: Education-Other

Detailed Use/Function: Education-Other

Type Of Use/Function: Current

Use/Function Category: Government

Use/Function: Government-Other

Detailed Use/Function: Government-Other

Type Of Use/Function: Current

Ethnographic Information

Ethnographic Survey Conducted: No Survey Conducted

Adjacent Lands Information

Do Adjacent Lands Contribute? No

Adjacent Lands Description:

General Management Information

Management Category: Should Be Preserved And Maintained

Management Category Date: 9/15/2003

Explanatory Narrative:

The 'Ainahou Ranch House and Gardens historic landscape meets National Register criteria B and C (the ranch house was listed on the National Register in 1995). The inventory unit is also compatible with the park's legislative significance. The 2001-2005 Strategic Plan for Hawai'i Volcanoes National Park lists the following as one of the five main purposes of the park: "To protect, preserve, and study cultural resources including landscapes, features, and museum objects". Thirdly, the inventory unit continues to serve a purpose in the conservation of the endangered Hawai'i State Bird (Nene), which is very appropriate to its traditional use.

Furthermore, the inventory unit is a unique and viable location for hosting educational field trips for learning about local history, horticulture, and natural heritage. The nursery area within the inventory unit is now used by the NPS for propagating rare native plants. None of these purposes or uses is inappropriate to the landscape's traditional use and function.

Condition Assessment And Impacts

The criteria for determining the condition of landscapes is consistent with the Resource Management Plan Guideline definitions (1994) and is decided with the concurrence of park management. Cultural landscape conditions are defined as follows:

Good: indicates the landscape shows no clear evidence of major negative disturbance and deterioration by natural and/or human forces. The landscape's cultural and natural values are as well preserved as can be expected under the given environmental conditions. No immediate corrective action is required to maintain its current condition.

Fair: indicates the landscape shows clear evidence of minor disturbances and deterioration by natural and/or human forces, and some degree of corrective action is needed within 3-5 years to prevent further harm to its cultural and/or natural values. If left to continue without the appropriate corrective action, the cumulative effect of the deterioration of many of the character-defining elements will cause the landscape to degrade to a poor condition.

Poor: indicates the landscape shows clear evidence of major disturbance and rapid deterioration by natural and/or human forces. Immediate corrective action is required to protect and preserve the remaining historical and natural values.

Undetermined: Not enough information available to make an evaluation.

Condition Assessment: Fair

Assessment Date: 12/10/2003

Date Recorded: 09/30/1999

Park Management Concurrence: Yes **Concurrence Date:** 8/24/2004

Level Of Impact Severity:

Moderate

Explanatory Notes:

The 'Ainahou Ranch House and Gardens landscape is negatively impacted by changing vegetation patterns resulting from: planting non-contributing species, deferred maintenance of existing trees, absence of grazing, and an increase in invasive species colonization pressure following the period of significance. Woody, invasive species continue to degrade historic vistas, but also threaten to encroach on remaining open-space areas and designed vegetation. Contributing tree species in close proximity to the ranch house threaten to cause damage to the building resulting from falling trees or limbs. Non-contributing plants have been planted in the garden beds around the house to fill voids created when contributing plants died. A vegetation management plan for the inventory unit is urgently needed. If some degree of corrective action is not taken in the next three to five years, significant degradation to several landscape characteristics seems inevitable. Foreseeable impacts of unmanaged vegetation include impacts to the 'Ainahou Ranch House, which is already on the National Register.

Stabilization Measures:

Stabilize vegetation resources that are a potential risk to the ranch house.

Prune or limb the cork oak trees and pine trees in close proximity to the ranch house to avoid threats to house from falling limbs and unhealthy or dying trees.

Impact:

Type of Impact: Vegetation/Invasive Plants

Internal/External: Internal

Description:

Woody, invasive plant species are continuously sprouting seedlings in the component landscape and threaten to establish in areas that were historically characterized by open space. If permitted to grow, these noxious species may further compromise historic vistas and distort historic spatial organization. Annually remove saplings of invasive species to prevent further depreciation of historic vegetation patterns. Use mechanical techniques or herbicide. Seedlings can be easily hand-pulled if management is frequent and persistent enough so that saplings are not permitted to establish extensive root systems. The species in need of the most persistent removal are Russian Olive (*Elaeagnus angustifolia*), faya trees (*Morella faya*), and Formosan koa (*Acacia confusa*). This work should begin as soon as possible since labor costs and impact severity increases as the plants mature. An annual estimate of this maintenance cost is included in Supplemental Information.

Type of Impact: Vegetation/Invasive Plants

Internal/External: Internal

Description:

Established stands of faya trees located immediately south of the landscape boundary are obstructing the southerly vista. Although, this important historic vista is already impaired, further growth of these relatively young (but extremely fast-growing) faya tree stands threatens to totally obstruct all visibility of the ocean and lower ranch. Although faya trees are also established elsewhere on the property, the area to the south of the house should be prioritized due to its potential to restore the most important historic vista. The area in which this treatment would yield the most cost-effective results lies south-southeast of the house and west of the corral (see Site Plan in Supplemental Information). The extent, methodology, and costs of such a treatment should be outlined in a vegetation plan as soon as possible. Such a plan should also prioritize the established stands of Russian olive trees that occur within the driveway loop and distort the historic feeling and spatial organization of this portion of the component landscape.

Type of Impact: Planting Practices

Internal/External: Internal

Description:

NPS employees and park volunteers have planted non-contributing plant varieties in prominent locations in the component landscape. For the most part, this was done with the intention of maintaining a pleasant atmosphere at a historic site. Other elements were planted for utilitarian or ceremonious reasons (see Vegetation section of text). These types of planting practices should cease immediately and non-contributing vegetation that has been planted by NPS employees and park volunteers should be removed and replaced with the species that were originally in those locations. This may be impossible to recreate with one-hundred percent accuracy, however, further research and correspondence with Shipman's relatives may yield important information as to what species of orchids, roses, etc. were growing near the house and in other prominent locations. Most if not all of the non-contributing species have already been identified. The cost and feasibility of this treatment should be outlined in a vegetation management plan as soon as possible.

Type of Impact: Pruning Practices

Internal/External: Internal

Description:

The large cork oak on the northwest side of the ranch house is overhanging the roof and threatens to cause damage if and when limbs break off. This tree also provides rats with easy access to the roof of the house and deposits debris (leaves and twigs) on the roof and in the gutters. A few other trees on the east side of the house and an 'ohi'a tree to the southwest are also in need of pruning or limbing to decrease risk of damage induced by storms. An 'ohi'a tree to the northwest of the house appears to be dead and should be removed to avoid risk of injury and damage to the ranch house.

Agreements, Legal Interest, and Access

Management Agreement: Other -- "Friends of Hawai'i Volcanoes National Park" (a volunteer group) maintain lawn and plants surrounding the ranch house.

Expiration Date: NOT APPLICABLE

Explanatory Narrative:

"Friends of 'Ainahou", today known as the "Friends of Hawai'i Volcanoes National Park" have been maintaining the lawn and planted areas around the 'Ainahou Ranch House since September 30, 1995 when the volunteer group was formally established.

NPS Legal Interest: Fee Simple

Explanatory Narrative:

'Ainahou Ranch House and Gardens falls in tract number 01-114 which is owned by the National Park Service.

Public Access: Other Restrictions

During Nene (endangered goose) breeding season, public access is denied if there is a display of breeding behavior (nesting, laying eggs, raising of gosling) on the ranch house grounds.

Unrestricted

Public access to the ranch house grounds is permitted provided that it is not Nene nesting season. There is however a locked gate throughout the year and vehicular access is only allowed with special permission.

Treatment

Approved Treatment: Undetermined

Approved Treatment Document:

Document Date:

Explanatory Narrative:

Regarding management of cultural landscapes, NPS Director's Order 28 includes the following guidelines with respect to vegetation: "maintaining and perpetuating historic plants and plant patterns..., controlling the spread of exotic historic plants into adjacent native plant communities..., and fulfilling these and other management concerns in a manner that does not threaten or disrupt other cultural features and artifacts or the surrounding environment". In order to adhere to these guidelines, the component landscape at 'Ainahou is in urgent need of a vegetation management plan. The plan should address the impacts discussed in the Condition Assessment and Impacts section of this report as well as general caretaking of contributing plants on site.

Approved Treatment Completed: No

Approved Treatment Cost

LCS Structure Approved

Treatment Cost: \$0

**Landscape Approved
Treatment Cost:** \$0

Cost Date:

Level of Estimate:

Cost Estimator:

Explanatory Description: The LCS has not identified ultimate approved treatment costs for the buildings and structures and no landscape treatment costs have been identified in a park document. Treatment costs for the landscape need to be assessed in a vegetation management plan.

Stabilization Costs

LCS Structure Stabilization Cost: \$17,500

Landscape Stabilization Costs: \$2,997

Cost Date: January 4, 2004

Level Of Estimate: C - Similar Facilities

Cost Estimator:

Contractor

Explanatory Description:

This structure stabilization cost estimate of \$17,500 is based on the interim treatment costs listed in the LCS for structures that occur within the component landscape: Ranch house (\$5000), Lua (\$3000), Shed no 1 (\$2,000), Shed no. 2 (\$2,000), Greenhouse ruin (\$500), water tank #B320E (\$2,000), Water tank foundation (\$1,000), Water Tank #B320G (\$1,000), Stone Walls (\$1,000).

The Landscape Stabilization Cost is based on a quoted estimate by Jacunski's Complete Tree Service for: pruning trees that overhang the ranch house, and limbing or felling trees in close proximity to the house, which are partially or wholly dying and threaten to cause damage to the ranch house if not removed.

Documentation Assessment and Checklist

Documentation Assessment: Good

Documentation:

Document: Other

Year Of Document: 1995

Amplifying Details: Master Plan

Adequate Documentation: No

Explanatory Narrative:

This report is outdated and does not address current planning, vegetation, or preservation needs for this park.

Document: Administrative History

Year Of Document: 1972

Amplifying Details: Jackson, Frances. An Administrative History of Hawai'i Volcanoes National Park and Haleakala National Park.

Adequate Documentation: Yes

Explanatory Narrative:

This document contains a thorough history of Hawai'i Volcanoes National Park and Haleakala National Park.

Document: Other

Year Of Document: 2003

Amplifying Details: Suzuki/Morgan Architects, LTD. Historic Structures Report for the 'Ainahou Ranch House at Hawai'i Volcanoes National Park.

Adequate Documentation: Yes

Explanatory Narrative:

This document is a thorough Historic Structures Report for the 'Ainahou Ranch House.

Document: Other

Year Of Document: 1994

Amplifying Details: Keswick, Janet and Thomas Quinlan. National Register of Historic Places Registration Form for 'Ainahou Ranch House.

Adequate Documentation: No

Explanatory Narrative:

The nomination form describes the site, but would benefit from more detail on the garden areas.

Document:	Other
Year Of Document:	2003
Amplifying Details:	National Park Service. Preservation of 'Ainahou Ranch Rainshed.
Adequate Documentation:	Yes
Explanatory Narrative:	This document describes the process of preserving the two large rainsheds located north of the ranch house.
Document:	Other
Year Of Document:	1997
Amplifying Details:	National Park Service. Final Environmental Assessment, Rehabilitation, Maintenance, and Long-term use for 'Ainahou Ranch House.
Adequate Documentation:	Yes
Explanatory Narrative:	This document describes the rehabilitation, maintenance and long-term use for the 'Ainahou Ranch House.

Appendix

Bibliography

Citations:

Citation Author:	Apple, Russ
Citation Title:	'Ainahou Ranch: a Refuge for Nene and Humans
Year of Publication:	1991
Publisher:	Hawai'i Tribune Herald
Citation Type:	Both Graphic And Narrative
Citation Location:	HAVO CRM Library

Citation Author:	Cahill, Emmett
Citation Title:	The Shipmans of East Hawai'i.
Year of Publication:	1996
Publisher:	University of Hawai'i Press
Source Name:	Library Of Congress/Dewey Decimal
Citation Number:	CS71.S55675
Citation Type:	Both Graphic And Narrative
Citation Location:	HAVO Library

Citation Author:	National Park Service
Citation Title:	Final Environmental Assessment, Rehabilitation, Maintenance, and Long-term use for the 'Ainahou Ranch House.
Year of Publication:	1997
Publisher:	National Park Service
Citation Type:	Narrative
Citation Location:	HAVO CRM Library

Citation Author: Higashino, Paul K., Linda W. Cuddihy, Stephen J. Anderson, and Charles P. Stone
Citation Title: Checklist of Vascular Plants of Hawai'i Volcanoes National Park.
Year of Publication: 1988
Publisher: Cooperative National Park Resources Studies Unit
University of Hawai'i at Manoa
Citation Type: Narrative
Citation Location: University of Hawai'i Library

Citation Author: Jackson, Frances
Citation Title: An Administrative History of Hawai'i Volcanoes National Park and Haleakala National Park.
Year of Publication: 1972
Publisher: National Park Service
Citation Type: Narrative
Citation Location: HAVO Library

Citation Author: Keswick, Janet and Thomas Quinlan
Citation Title: National Register of Historic Places Registration Form for 'Ainahou Ranch.
Year of Publication: 1994
Publisher: National Park Service
Citation Type: Graphic
Citation Location: HAVO CRM Library

Citation Author: National Park Service
Citation Title: Preservation of 'Ainahou Ranch Rainshed
Year of Publication: 2003
Publisher: National Park Service
Citation Type: Both Graphic And Narrative
Citation Location: HAVO CRM Library

Citation Author: Neal, Marie C.
Citation Title: In Gardens of Hawai'i.
Year of Publication: 1965
Publisher: Bishop Museum Press
Citation Type: Both Graphic And Narrative
Citation Location: HAVO CRM Library

Citation Author: Suzuki/Morgan Architects
Citation Title: Historic Structures Report for the 'Ainahou Ranch House at Hawai'i Volcanoes National Park.
Year of Publication: 2003
Publisher: National Park Service
Citation Type: Both Graphic And Narrative
Citation Location: HAVO Library and CRM Library

Citation Author: United States Department of the Interior
Citation Title: Director's Order 28, Cultural Resource Management
Year of Publication: 1998
Publisher: United States Department of the Interior
Citation Type: Narrative
Citation Location: HAVO CRM Library

Citation Author: University of Hawai'i, Cooperative Extension Service
Citation Title: Leaflet 102, Conservation Series (Forage Grasses).
Year of Publication: 1966
Publisher: Cooperative Extension Service, University of Hawai'i.
Citation Type: Both Graphic And Narrative
Citation Location: Cooperative Extension Service, University of Hawai'i.

Citation Author: Wagner, W.L., D.R. Herbst, and S.H. Sohmer
Citation Title: Manual of the Flowering Plants of Hawai'i.
Year of Publication: 1990
Publisher: Bishop Museum
Source Name: Library Of Congress/Dewey Decimal
Citation Number: QK473.H4W33
Citation Type: Both Graphic And Narrative
Citation Location: HAVO CRM Library

Citation Author: Wolfe, Edward W. and Jean Morris
Citation Title: Geologic Map of the Island of Hawai'i.
Year of Publication: 1996
Publisher: United States Geological Survey, Department of the Interior

Citation Type: Graphic
Citation Location: HAVO CRM Library

Citation Author: Juvik, Sonia and James Juvik
Citation Title: Atlas of Hawai'i, Third Edition
Year of Publication: 1998
Publisher: University of Hawai'i Press
Source Name: Library Of Congress/Dewey Decimal
Citation Number: G1534.20 U51998
Citation Type: Both Graphic And Narrative
Citation Location: HAVO, CRM Library

Citation Author: Dr. James C. Nolan
Citation Title: History of Beef Cattle in Hawai'i
Year of Publication: 2001
Publisher: University of Hawai'i at Manoa
Source Name: Internet
Citation Type: Both Graphic And Narrative
Citation Location: URL <http://www.hawaii.edu/ansc/History/histbeef.htm>

Supplemental Information

Title:	'Ainahou Ranch
Description:	Unpublished Video After Dark in the Park (videotaped) presentation by Emmet Cahill, 1993 HAVO Library
<hr/>	
Title:	'Ainahou Ranch Project
Description:	Unpublished NPS report, 1978 Gar Clarke, Allen Ramos, Clinton Kahilihiwa HAVO Library Archives
<hr/>	
Title:	'Ainahou Water Line Diagram
Description:	Clarke, Gar (1978) NPS Unpublished Sketch Graphic HAVO Library
<hr/>	
Title:	(Untitled)
Description:	List and Location of Identified Plants near 'Ainahou Ranch House Markiewicz, W. and Alana McKinney, 1995 Narrative HAVO CRM Library
<hr/>	
Title:	A History and Historic Resource Study of the Lower Portion of the 'Ili 'Aina of Keauhou District of Ka'u
Description:	NPS Unpublished Report Frances Jackson 1997, Mara Durst 2001 Graphic and Narrative HAVO CRM Library
<hr/>	
Title:	Botanical Collection 'Ainahou
Description:	Compiled List of Plant Sightings at 'Ainahou Kageler, Dina (1984) NPS Unpublished Report HAVO, CRM Library
<hr/>	

Title: Historic American Engineering Record
Hawai'i Volcanoes National Park Roads

Description: NPS Unpublished Manuscript, 1999
Both Graphic and Narrative
HAVO CRM Library

Title: Interview with Donn Carlsmith (1)

Description: Markiewicz, Wilhelmina (1995)
Narrative
HAVO CRM Library

Title: Interview with Donn Carlsmith (2)

Description: Markiewicz, Wilhelmina (1997)
Narrative
HAVO CRM Library

Title: Interview with Donn Carlsmith (3)

Description: Markiewicz, Wilhelmina (1999)
Narrative
HAVO CRM Library

Title: Personal Communication

Description: Informal interviews and / or site visits were conducted with the following individuals in 2003:

Thomas English
Fred Koehnen
Wilhelmina Markiewicz
Alana McKinney
Bob Mattos
Linda Pratt
Charlie Ricketts
Kathleen Sherry
Zoe Thorne
Chris Zimmer

Title: Photograph Collections

Description: 1940s Historic Photos courtesy of Samuel M. Lowrey

1940s Historic Photos courtesy of Shipman LTD

1970s, 1999, and 2003 NPS Photos, HAVO, CLI files

Title: Ten Year Garden Maintenance Plan, 'Ainahou Ranch, Hawai'i Volcanoes National Park

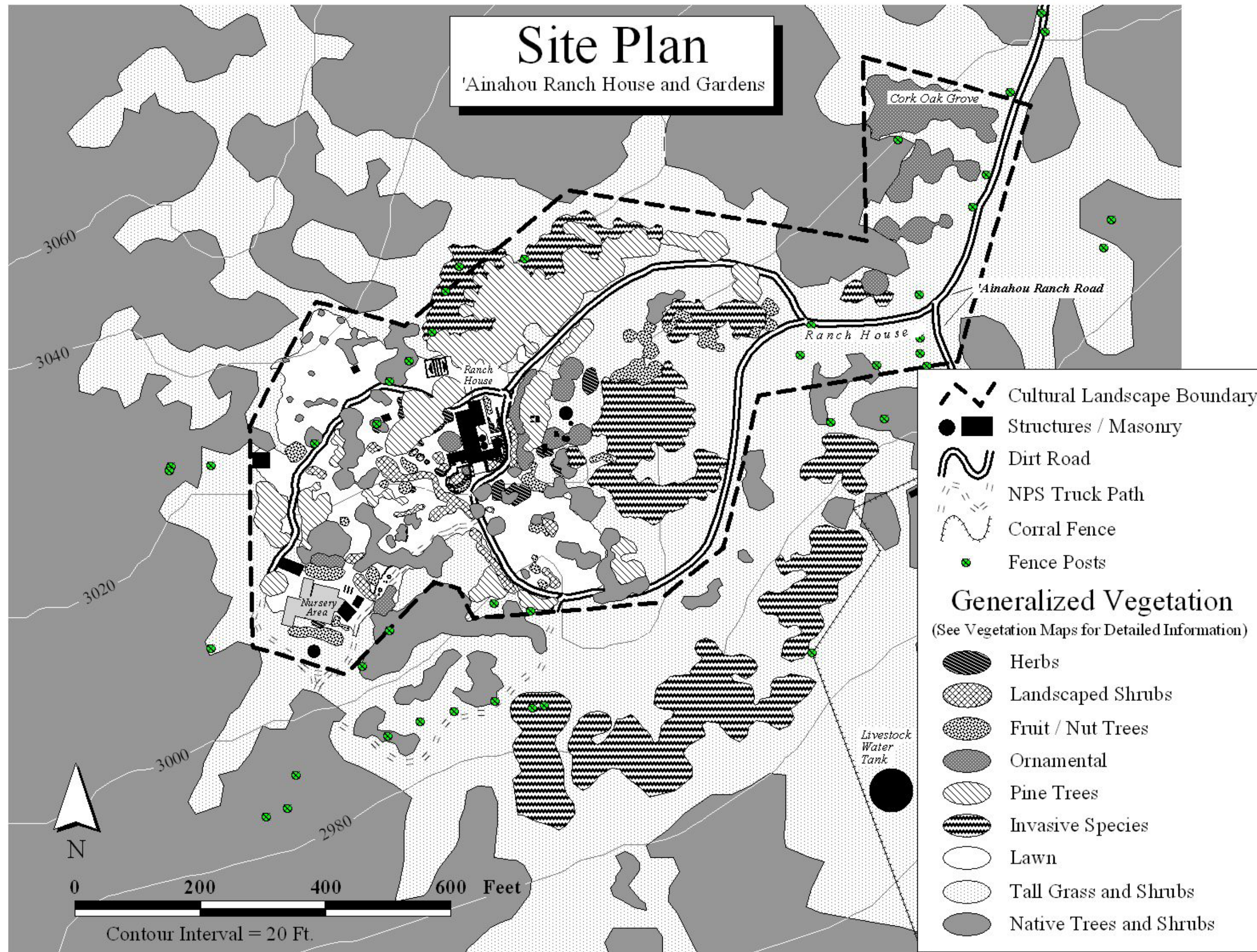
Description: Unpublished NPS report, 1997 (Narrative)
Markiewicz, McKinney, Tunison, Keswick
HAVO CRM Library

Title: University of Hawaii Botany

Description: UH Botany Web Page
University of Hawai'i, Botany Department, 2003
Both Graphic and Narrative
<http://www.botany.hawaii.edu>

Site Plan

'Ainahou Ranch House and Gardens



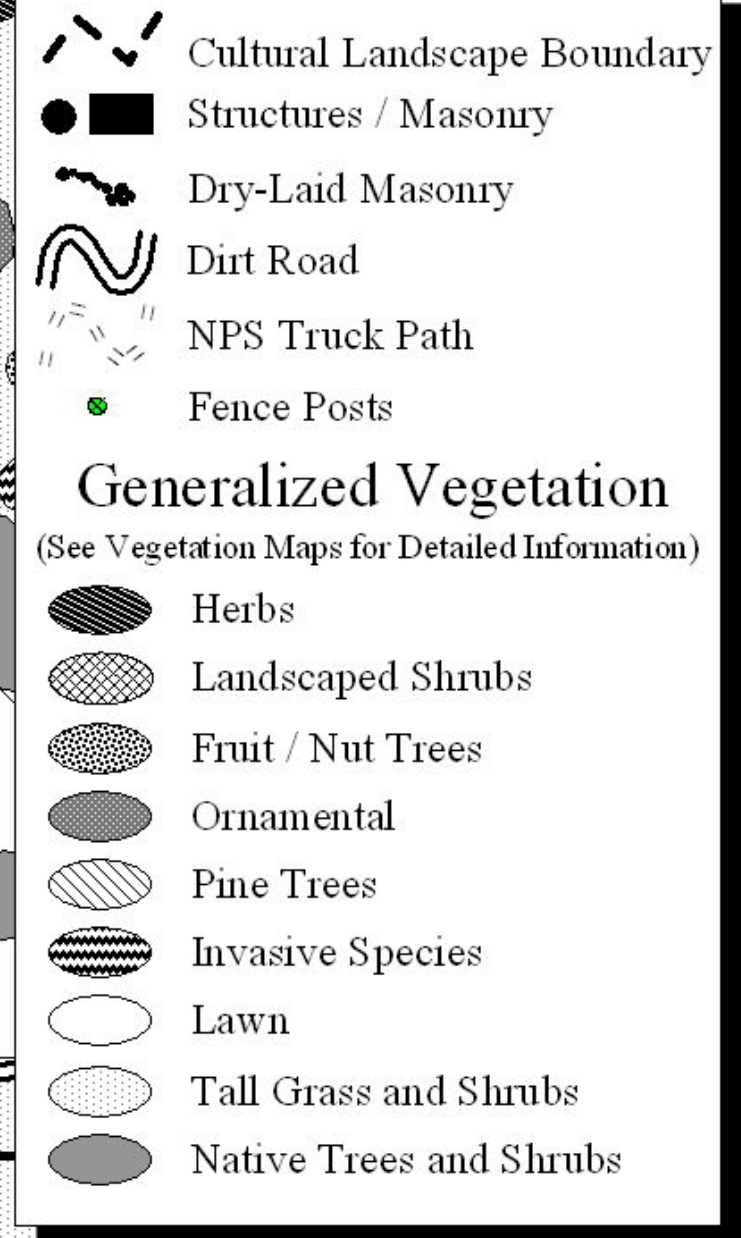
Site Plan

(Enlarged View)

'Ainahou Ranch House and Gardens

Ranch
House

Nursery
Area









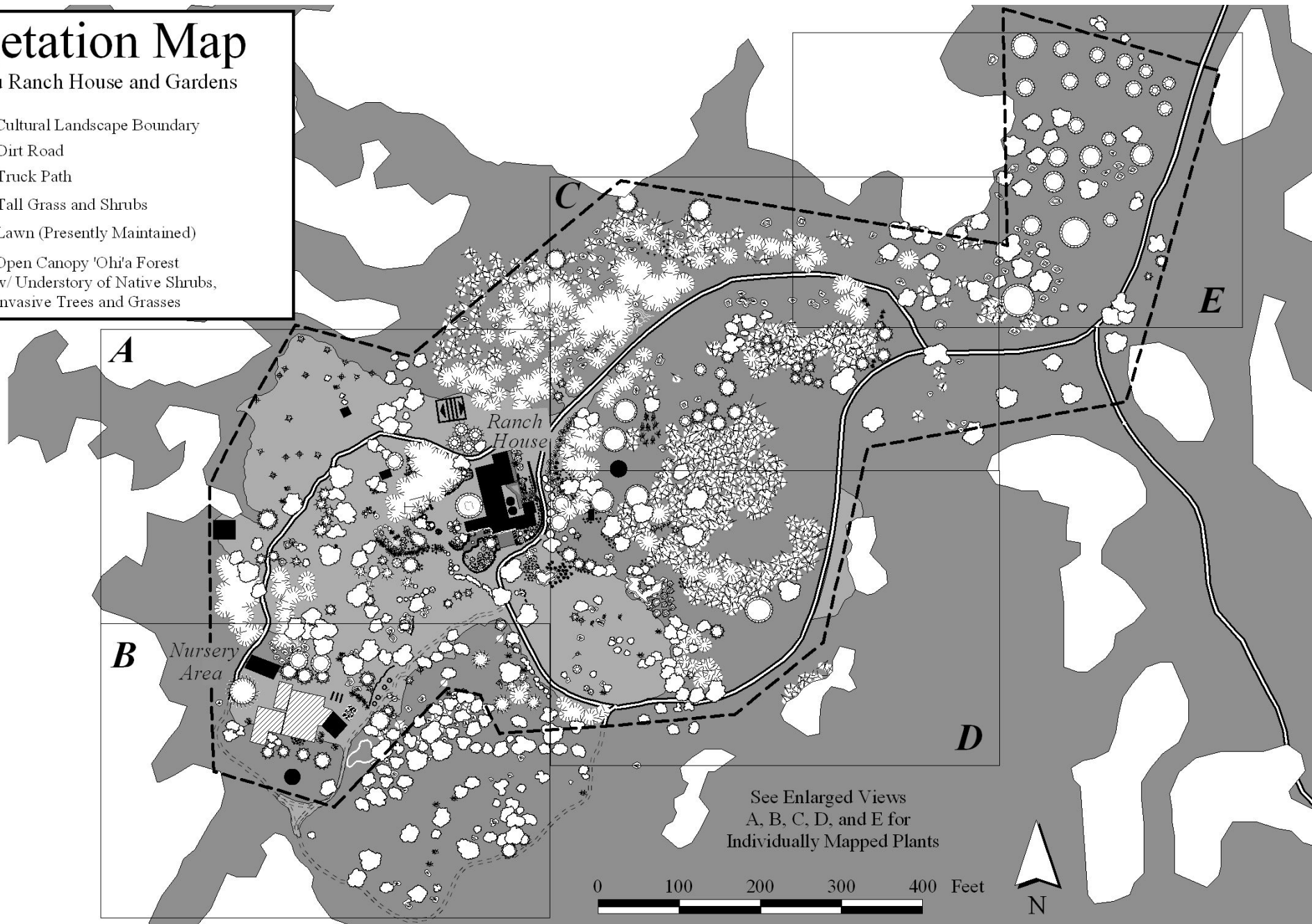
0 100 200 300 Feet

Contour Interval = 20 Ft.

Vegetation Map

'Ainahou Ranch House and Gardens

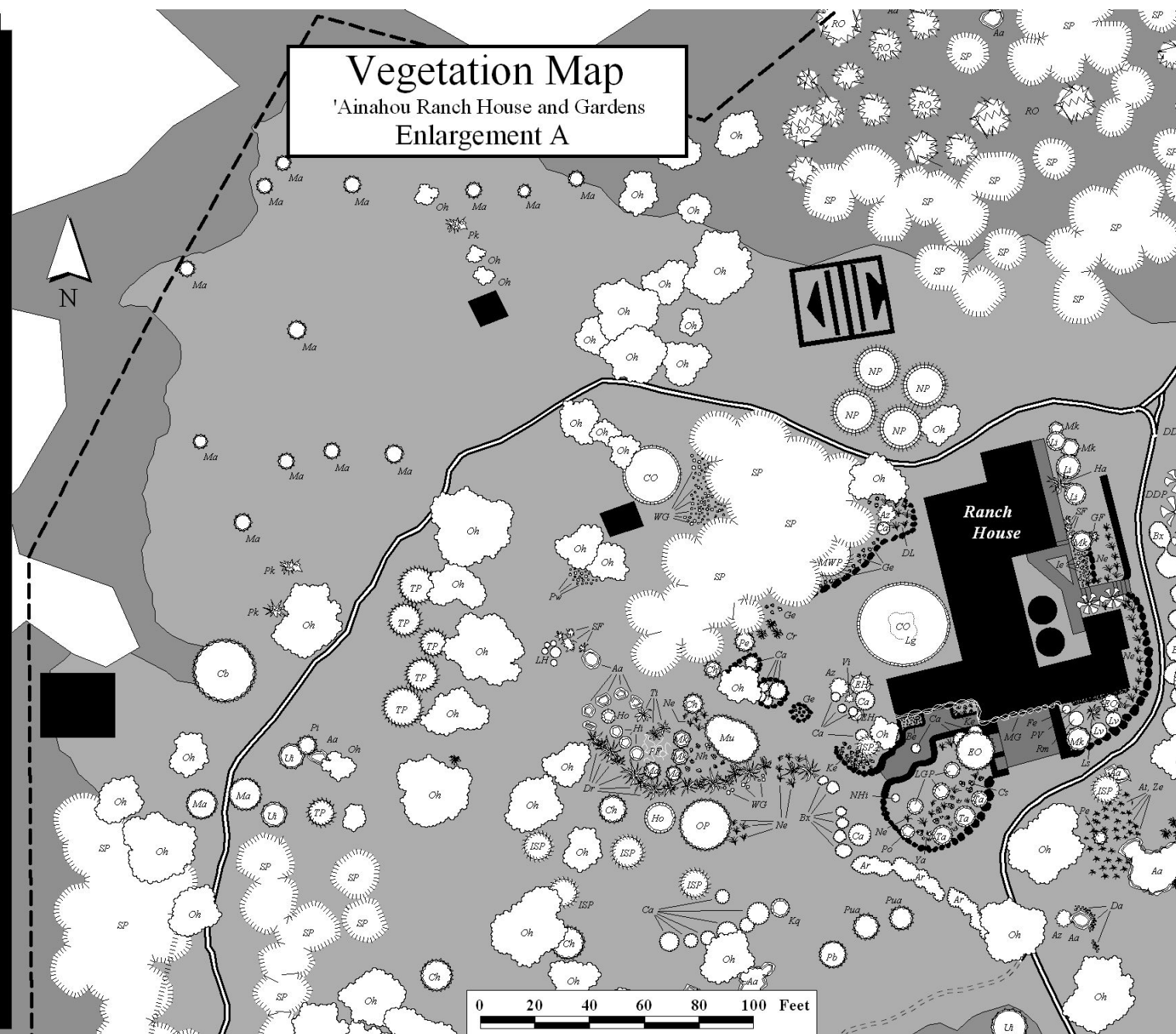
-  Cultural Landscape Boundary
-  Dirt Road
-  Truck Path
-  Tall Grass and Shrubs
-  Lawn (Presently Maintained)
-  Open Canopy 'Ohi'a Forest w/ Understory of Native Shrubs, Invasive Trees and Grasses



-  Cultural Landscape Boundary
-  Dirt Road
-  Truck Path
-  Tall Grass and Shrubs
-  Lawn (Presently Maintained)
-  Open Canopy 'Ohi'a Forest w/ Understory of Native Shrubs, Invasive Trees and Grasses

Individually Mapped Plants

<i>Aa</i>	'A'ali'i	<i>Mu</i>	Mulberry
<i>Ar</i>	Arborvitae	<i>MWP</i>	Mexican Weeping Pine
<i>At</i>	Aristea	<i>Na</i>	Narcissus Lily
<i>Az</i>	Azalea	<i>Ne</i>	Neomaria
<i>Be</i>	Begonia	<i>Nh</i>	Nehe
<i>Bx</i>	Boxwood	<i>NHi</i>	Native Hibiscus
<i>Ca</i>	Camelia	<i>NP</i>	Norfolk Pine
<i>Cb</i>	Carob	<i>Oh</i>	'Ohi'a
<i>Ch</i>	Cherimoya	<i>OP</i>	Ornamental Pear
<i>Cr</i>	Crinum Lily	<i>Pb</i>	Plumbago
<i>Cs</i>	Calliopsis	<i>Pe</i>	Peach
<i>Da</i>	Daisy	<i>PF</i>	Passion Fruit
<i>DL</i>	Day Lily	<i>Pi</i>	Pilo
<i>Dr</i>	Dracaena	<i>Pk</i>	Pukiawe
<i>EH</i>	English Holly	<i>Po</i>	Pomelo
<i>EO</i>	European Olive	<i>Pua</i>	Plumeria
<i>Fe</i>	Fennel	<i>PV</i>	Purple Violet
<i>Ge</i>	Geranium	<i>Pw</i>	Periwinkle
<i>GF</i>	Gold Fern	<i>Rm</i>	Rosemary
<i>Ha</i>	Hala pepe	<i>RO</i>	Russian Olive
<i>Hi</i>	Hibiscus	<i>Rw</i>	Dawn Redwood
<i>Ho</i>	Ho'awa	<i>SF</i>	Sword Fern
<i>Ie</i>	'Ilie'e	<i>SP</i>	Slash Pine
<i>ISP</i>	Italian Stone Pine	<i>Ta</i>	Tangerine
<i>Ke</i>	Kalanchoe	<i>Ti</i>	Ti
<i>Kq</i>	Kumquat	<i>TP</i>	Tsugi Pine
<i>LGP</i>	Looking Glass Plant	<i>Ui</i>	'Ulei
<i>LH</i>	Lantern Hibiscus	<i>Vj</i>	Vireya
<i>Ls</i>	Lemongrass	<i>WA</i>	White Ash
<i>Lv</i>	Lavender	<i>WG</i>	White Geranium
<i>Ma</i>	Mamane	<i>Ya</i>	Yarrow
<i>MG</i>	Mustang Grape	<i>Ze</i>	Zephyr Lily
<i>Mk</i>	Mamaki		



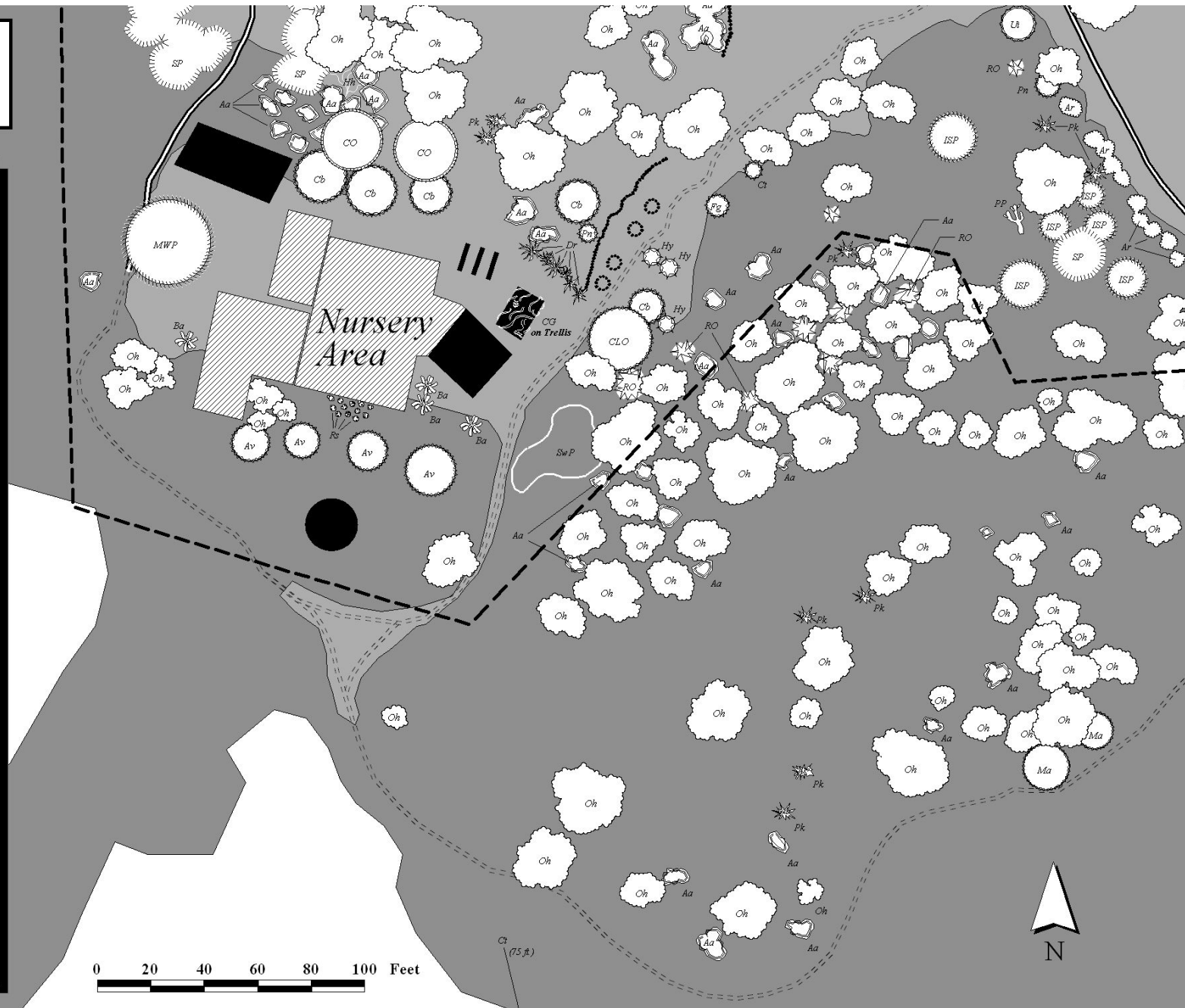
Vegetation Map

'Ainahou Ranch House and Gardens
Enlargement B

-  Cultural Landscape Boundary
-  Dirt Road
-  Truck Path
-  Tall Grass and Shrubs
-  Lawn (Presently Maintained)
-  Open Canopy 'Ohi'a Forest w/ Understory of Native Shrubs, Invasive Trees and Grasses

Individually Mapped Plants

<i>Aa</i>	'A'ali'i
<i>Ar</i>	Arborvitae
<i>Av</i>	Avocado
<i>Ba</i>	Banana
<i>Cb</i>	Carob
<i>CG</i>	Concord Grape
<i>CLO</i>	California Live Oak
<i>CO</i>	Cork Oak
<i>Ct</i>	Chestnut
<i>Dr</i>	Dracaena
<i>Fg</i>	Fig
<i>Hh</i>	Huehue
<i>Hy</i>	Chinese Holly
<i>ISP</i>	Italian Stone Pine
<i>MWP</i>	Mexican Weeping Pine
<i>Oh</i>	'Ohi'a
<i>Pk</i>	Pukiawe
<i>Pn</i>	Persimmon
<i>PP</i>	Prickly Pear
<i>RO</i>	Russian Olive
<i>Rs</i>	Rose
<i>SP</i>	Slash Pine
<i>SwP</i>	Sweet Pea
<i>Ui</i>	'Ulei



Vegetation Map

'Ainahou Ranch House and Gardens
Enlargement C

-  Cultural Landscape Boundary
-  Dirt Road
-  Truck Path
-  Tall Grass and Shrubs
-  Lawn (Presently Maintained)
-  Open Canopy 'Ohi'a Forest w/ Understory of Native Shrubs, Invasive Trees and Grasses

Individually Mapped Plants

- Aa* 'A'ali'i
- AE* American Elm
- CG* Concord Grape
- Ct* Chestnut
- DDP* Dwarf Date Palm
- El* Elengi
- Ka* Kauri Pine
- Le* Rough Lemon
- Lq* Loquat
- MN* Macadamia Nut
- Ne* Neomarica
- Oh* 'Ohi'a
- Pm* Plum
- Pn* Persimmon
- RO* Russian Olive
- Sa* Sandalwood
- SP* Slash Pines
- Ti* Ti Plant

0 20 40 60 80 100 Feet



Vegetation Map

'Ainahou Ranch House and Gardens
Enlargement D

-  Cultural Landscape Boundary
-  Dirt Road
-  Truck Path
-  Tall Grass and Shrubs
-  Lawn (Presently Maintained)
-  Open Canopy 'Ohi'a Forest w/ Understory of Native Shrubs, Invasive Trees and Grasses

Individually Mapped Plants

- Aa* 'A'ali'i
- Bx* Boxwood
- Ch* Cherimoya
- CO* Cork Oak
- Cr* Crinum Lily
- DDP* Dwarf Date Palm
- GO* Ground Orchid
- Gu* Guavasteen
- Kn* Kokotan
- Ku* Kukui Nut
- Le* Rough Lemon
- LP* Loblolly Pine
- Mg* Magnolia
- Mk* Mamaki
- MS* Magnolia Solangiana
- Na* Narcissus Lily
- Ne* Neomarica
- Oh* 'Ohi'a
- Pe* Peach
- Pk* Pukiawe
- RO* Russian Olive
- Rs* Rose
- SP* Slash Pine
- Wb* Woodbine
- Wi* Wiliwili

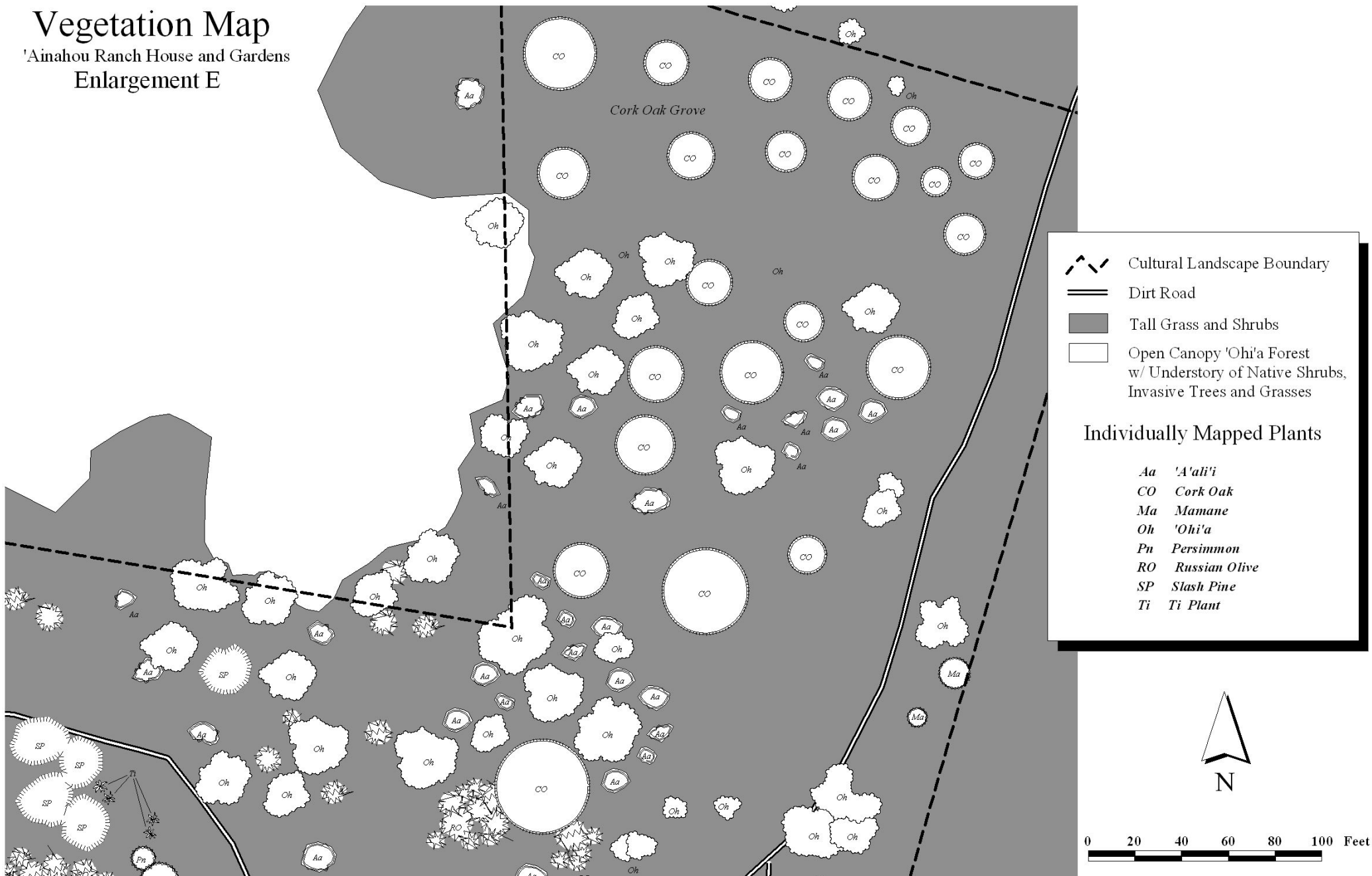
0 20 40 60 80 100 Feet

N

Gravel
Parking
Area

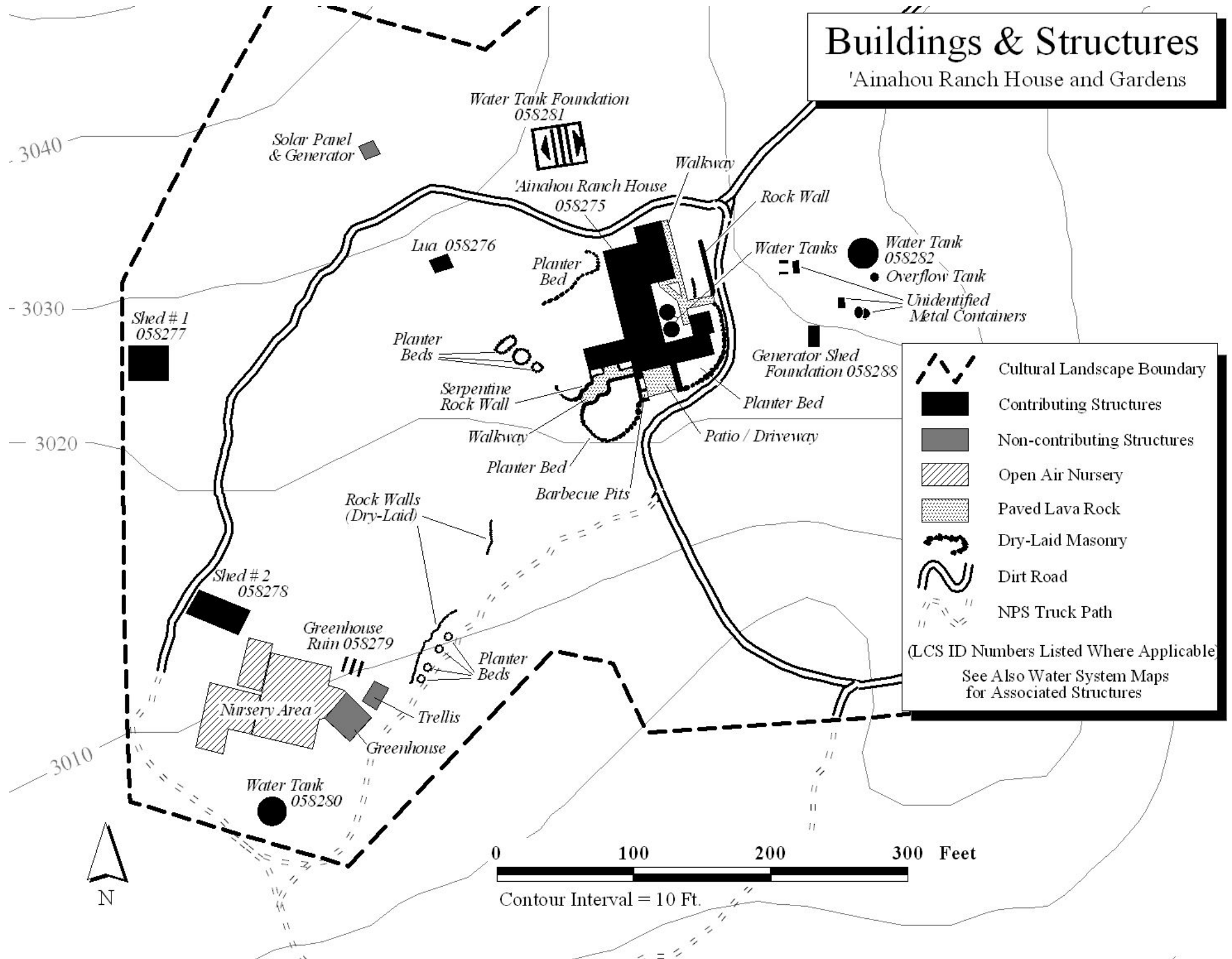
Vegetation Map

'Ainahou Ranch House and Gardens
Enlargement E



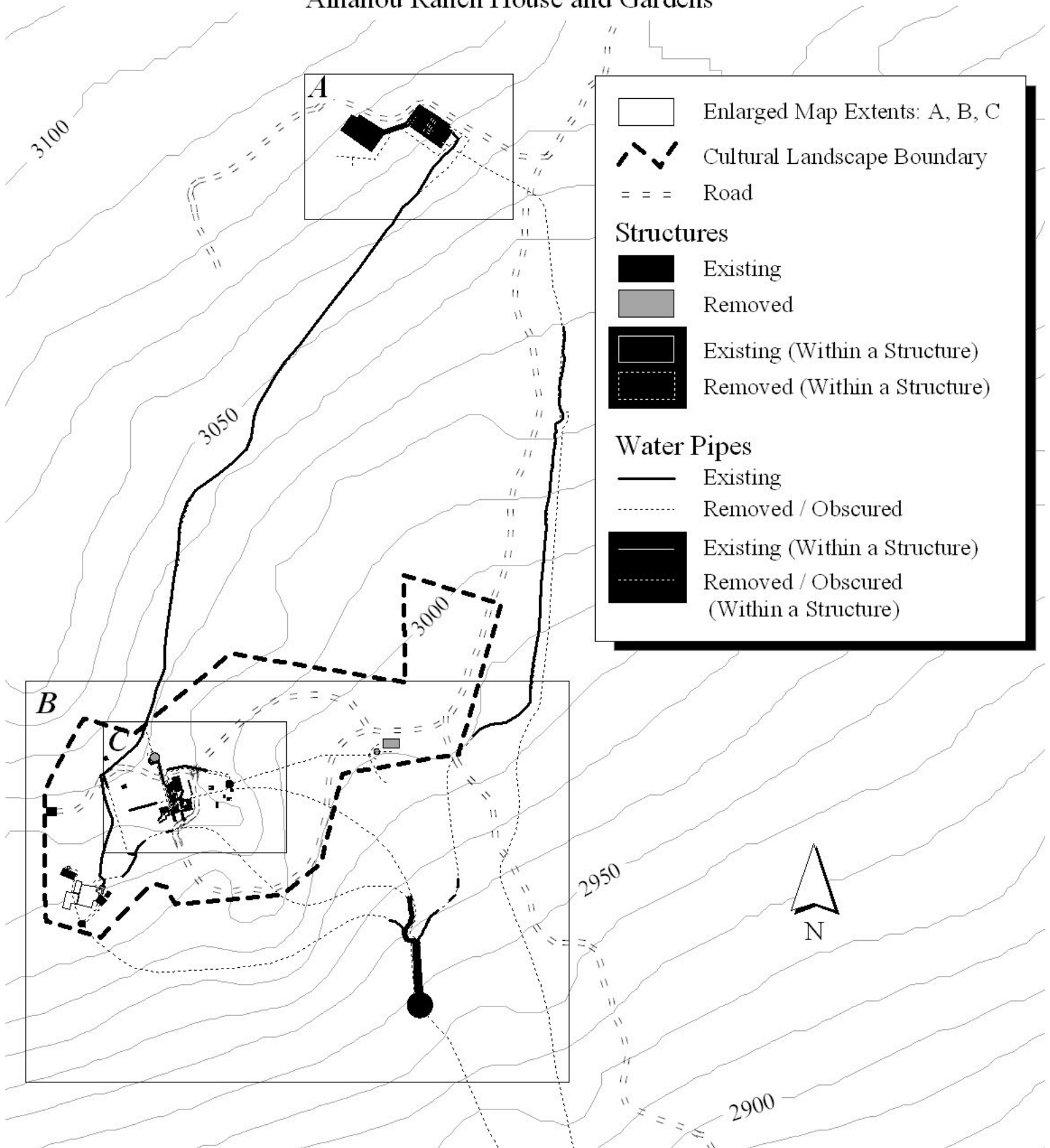
Buildings & Structures

'Ainahou Ranch House and Gardens



Water System

'Ainahou Ranch House and Gardens



Note: Existing Conditions Not Inclusive of Subsurface Features. Removed / Obscured Features Interpolated from G. Clarke's Diagram (1978) and Field Observations.

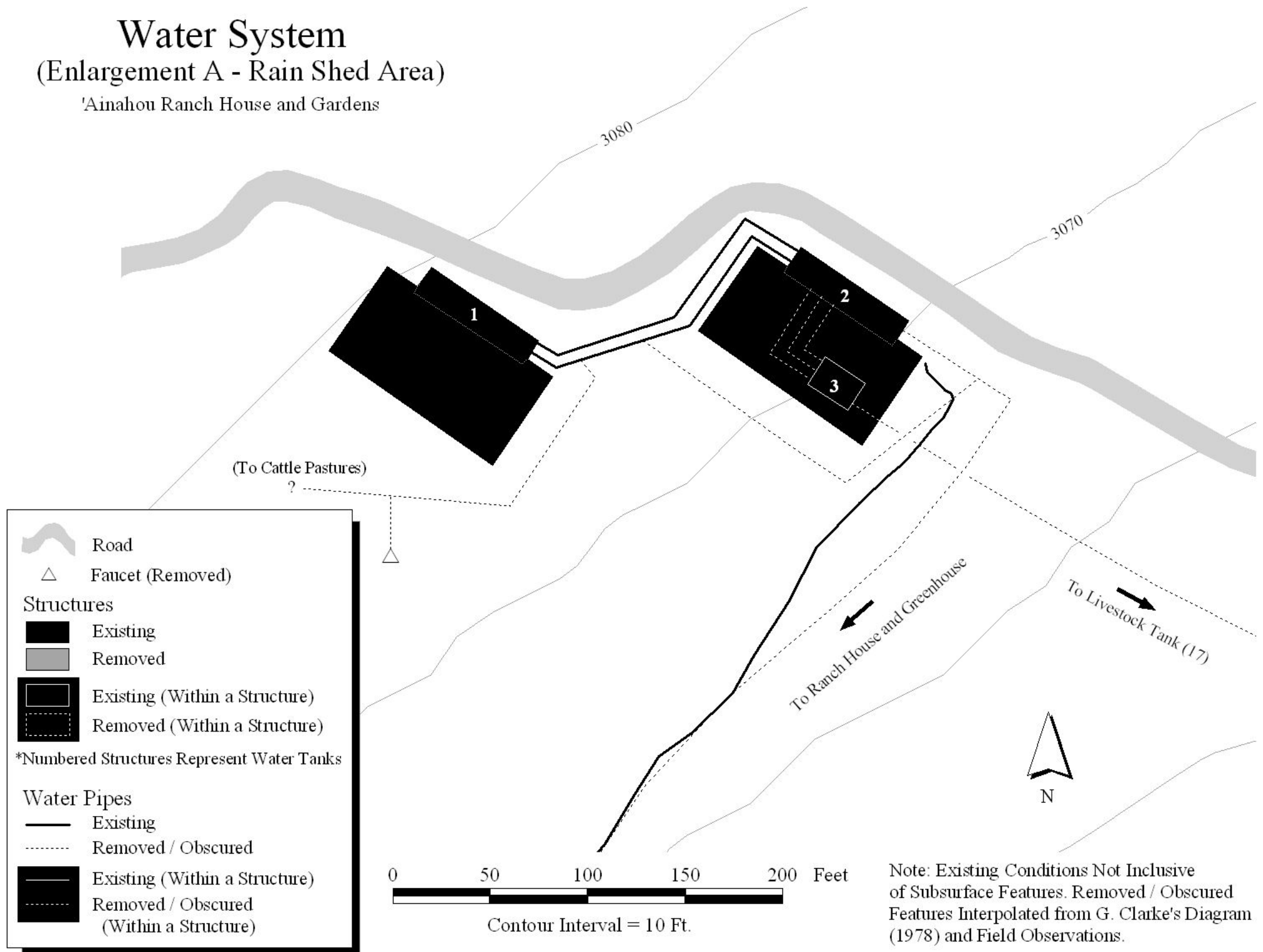
0 400 800 1200 Feet

Contour Interval = 10 Ft.

Water System

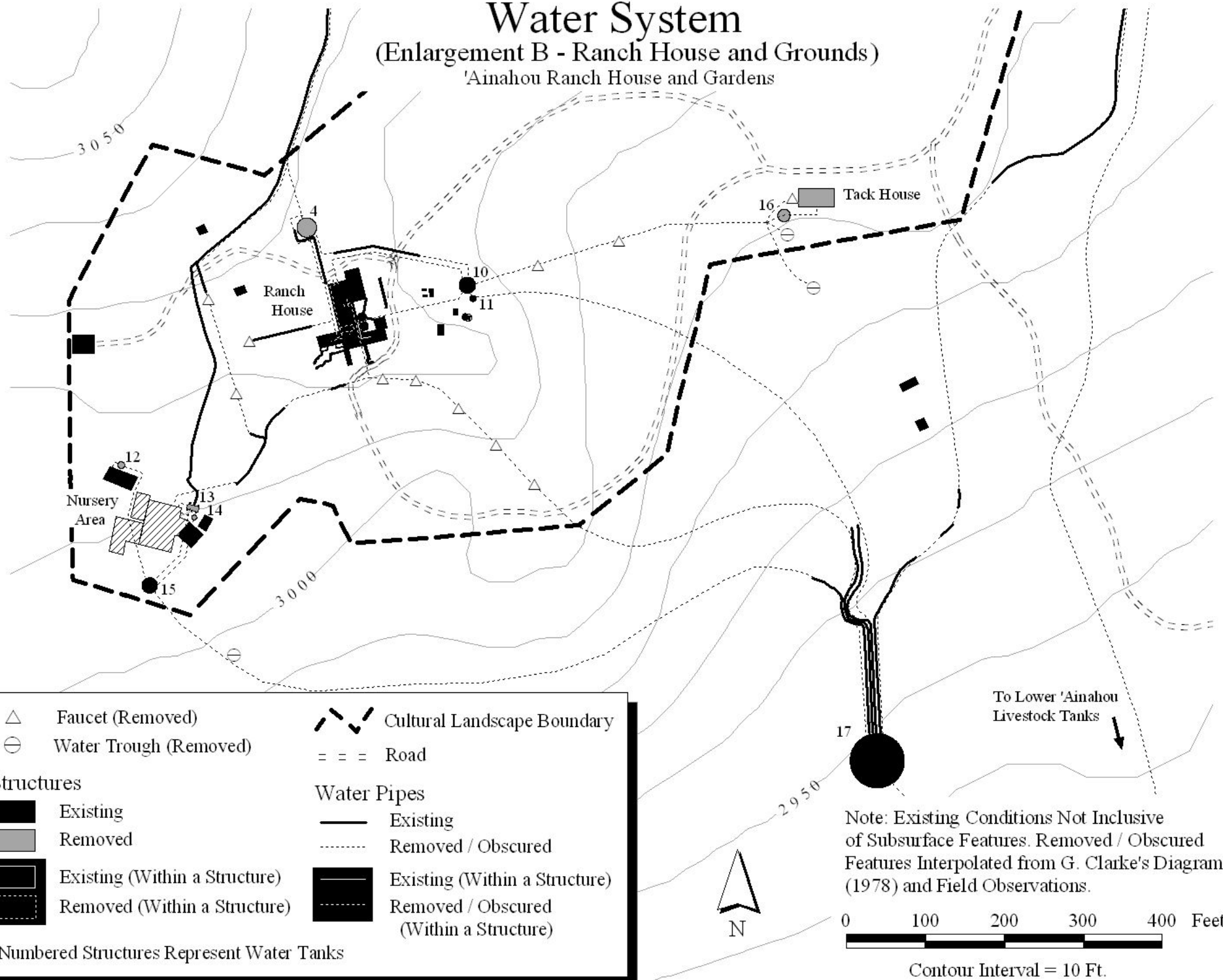
(Enlargement A - Rain Shed Area)

'Ainahou Ranch House and Gardens



Water System

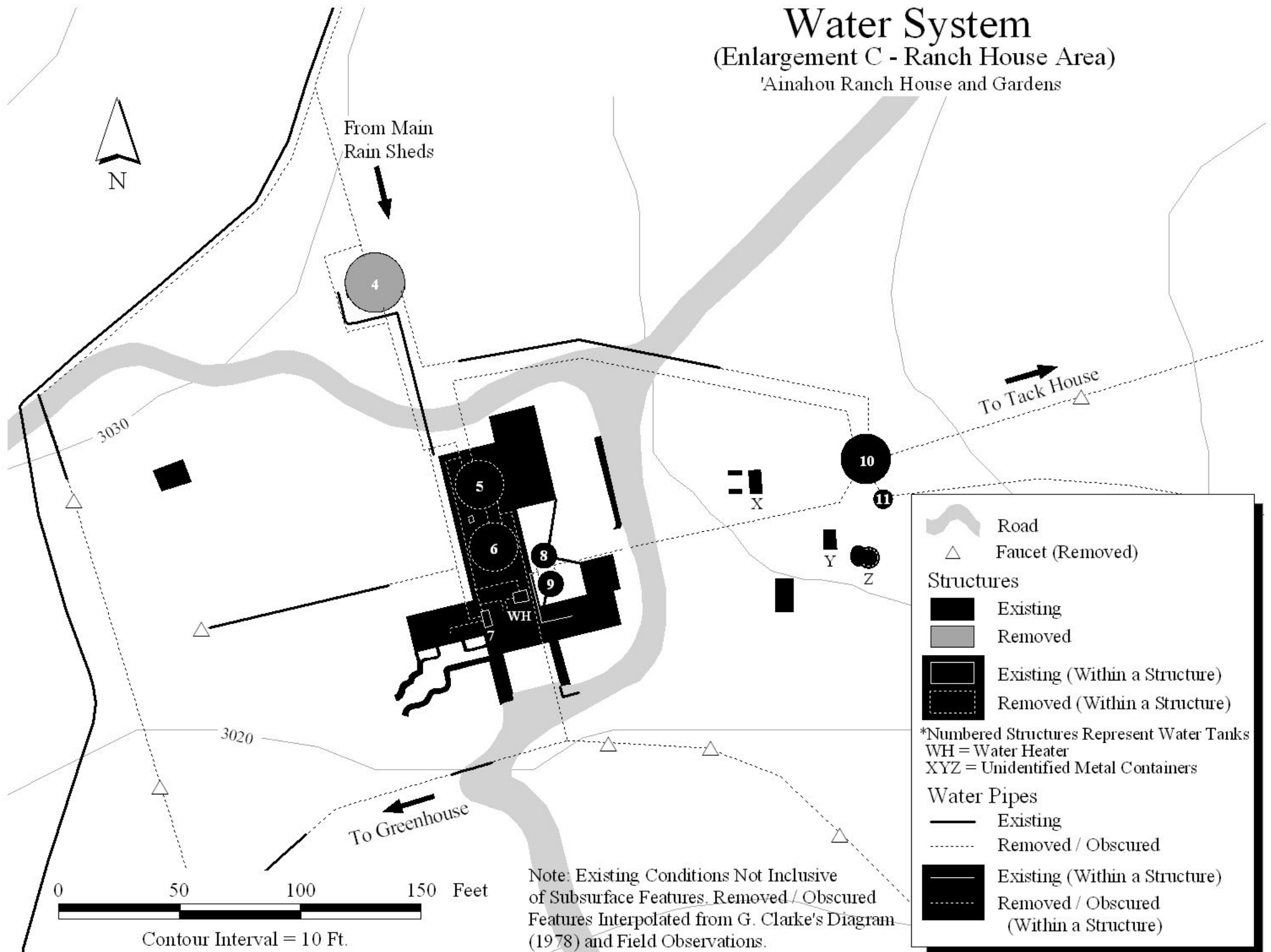
(Enlargement B - Ranch House and Grounds)
'Ainahou Ranch House and Gardens



Water System

(Enlargement C - Ranch House Area)

'Ainahou Ranch House and Gardens



Taxonomic Key to Vegetation Maps

Common Name	Map Abbreviation	Taxonomic Name
'A'ali'i	Aa	<i>Dodonaea viscosa</i>
American Elm	AE	<i>Ulmus americana</i>
Arborvitae	Ar	<i>Thuja orientalis</i>
Aristea	At	<i>Aristea gerrardii</i>
Avocado	Av	<i>Persea americana</i>
Azalea	Az	<i>Rhododendron sp.</i>
Banana	Ba	<i>Musa sp.</i>
Begonia	Be	<i>Begoniaceae sp.</i>
Boxwood	Bx	<i>Buxus sempervirens</i>
California Live Oak	CLO	<i>Quercus agrifolia</i>
Camellia	Ca	<i>Camellia japonica, Camellia sasanqua</i>
Carob	Cb	<i>Ceratonia siliqua</i>
Cherimoya	Ch	<i>Annona reticulate</i>
Chestnut	Ct	<i>Castanea dentata</i>
Chinese Holly	Hy	<i>Ilex cornuta</i>
Calliopsis	Cs	<i>Coreopsis sp.</i>
Cork Oak	CO	<i>Quercus suber</i>
Crinum Lily	Cr	<i>Crinum asiaticum</i>
Daisy	Da	<i>Chrysanthemum maximum</i>
Day Lily	DL	<i>Heimerocallis flava</i>
Dracaena	Dr	<i>Dracaena sp.</i>
Dwarf Date Palm	DDP	<i>Phoenix robellinii</i>
Elengi	EI	<i>Mimusops elengi</i>
English Holly	EH	<i>Ilex aquifolium</i>
European Olive	EO	<i>Olea europaea</i>
Fennel	Fe	<i>Foeniculum sp.</i>
Fig	Fg	<i>Ficus sp.</i>
Geraniums	Ge	<i>Geranium sp.</i>
Gold Fern	GF	<i>Pityrogramma chrysophylla</i>
Ground Orchid	GO	<i>Epidendrum obrieniiannun</i>
Guavasteen	Gu	<i>Feijoa sellowiana</i>

Common Name	Map Abbreviation	Taxonomic Name
Hala pepe	Ha	<i>Pleomele sp.</i>
Hibiscus	Hi	<i>Sida sp.</i>
Ho'awa	Ho	<i>Pittosporum sp.</i>
Huehue	Hh	<i>Cocculus trilobus</i>
'Ilie'e	le	<i>Plumbago zeylanica</i>
Italian Stone Pine	ISP	<i>Pinus pinea</i>
Kalanchoe	Ke	<i>Kalanchoe pinnata</i>
Kauri Pine	Ka	<i>Agathis australis</i>
Kokotan	Kn	<i>Rhaphiolepis umbellata</i>
Kukui Nut	Ku	<i>Aleurites moluccana</i>
Kumquat	Kq	<i>Fortunella japonica</i>
Lantern Hibiscus	LH	<i>Hibiscus schizopetalus</i>
Lavender	Lv	<i>Lavandula officinalis</i>
Lemongrass	Ls	<i>Cymbopogon refractus</i>
Ligularias	Lg	<i>Ligularia tussilaginea</i>
Looking Glass Plant	LGP	<i>Coprosma repens</i>
Lime	Li	<i>Citrus aurantiifolia</i>
Loblolly Pine	LP	<i>Pinus taeda</i>
Loquat	Lq	<i>Eriobotria japonica</i>
Macadamia Nut	MN	<i>Macadamia integrifolia</i>
Magnolia	Mg	<i>Magnolia grandiflora</i>
Mamaki	Mk	<i>Pipturus abidus</i>
Mamane	Ma	<i>Sophora chrysophylla</i>
Mexican Weeping Pine	MWP	<i>Pinus patula</i>
Mulberry	Mu	<i>Morus alba</i>
Mustang Grape	MG	<i>Vitis mustangensis</i>
Narcissus Lilly	Na	<i>Narcissus sp.</i>
Native Hibiscus	NHi	<i>Hibiscus schizopetalus</i>
Nehe	Nh	<i>Lipochaeta sp.</i>
Neomarica	Ne	<i>Neomarica sp.</i>
Norfolk Pine	NP	<i>Araucaria heterophylla</i>
'Ohi'a	Oh	<i>Metrosideros polymorpha</i>
Ornamental Pear	OP	<i>Pyrus kawakami</i>
Passion Fruit	PF	<i>Passiflora edulis</i>
Peach	Pe	<i>Prunus sp.</i>

Common Name	Map Abbreviation	Taxonomic Name
Periwinkle	Pw	<i>Vinca sp.</i>
Persimmon	Pn	<i>Diospyros virginiana</i>
Pilo	Pi	<i>Coprosma menziesii</i>
Plum	Pm	<i>Prunus sp.</i>
Plumbago	Pb	<i>Plumbago auriculata</i>
Plumeria	Pua	<i>Plumeria sp.</i>
Pomelo	Po	<i>Citrus paradise</i>
Prickly Pear	PP	<i>Opuntia ficus-indica</i>
Pukiawe	Pk	<i>Styphelia tameiameia</i>
Purple Violets	PV	<i>Viola sp.</i>
Rose	Rs	<i>Rosa sp.</i>
Rosemary	Rm	<i>Rosmarinus officinalis</i>
Rough Lemon	Le	<i>Citrus limonica</i>
Russian Olive	RO	<i>Elaeagnus angustifolia</i>
Sandalwood	Sa	<i>Santalum paniculatum</i>
Slash Pines	SP	<i>Pinus caribaea</i>
Sword Fern	SF	<i>Nephrolepis multiflora</i>
Sweet Pea	SwP	<i>Lathyrus odoratus</i>
Tangerines	Ta	<i>Citrus nobilis deliciosa</i>
Ti	Ti	<i>Coryline frutiosa</i>
Tsugi Pine	TP	<i>Cryptomeria japonica</i>
'Ulei	Ui	<i>Osteomeles anthyllidifolia</i>
Vireya	Vi	<i>Rhododendron sp.</i>
Watsonia	Wt	<i>Watsonia iridifolia</i>
White Concord Grape	CG	<i>Vitus labrusca</i>
White Geraniums	WG	<i>Geranium sp.</i>
Wiliwili	Wi	<i>Erinthrina sandwicensis</i>
Woodbine	Wb	<i>Lonicera periclymenum</i>
Yarrow	Ya	<i>Achillea sp.</i>
Zephyr Lily	Ze	<i>Zephyranthes rosea</i>